USHIO Applying Light to Life

LED

Light Emitting Diodes - Photonics Solutions

epitex

Product Map

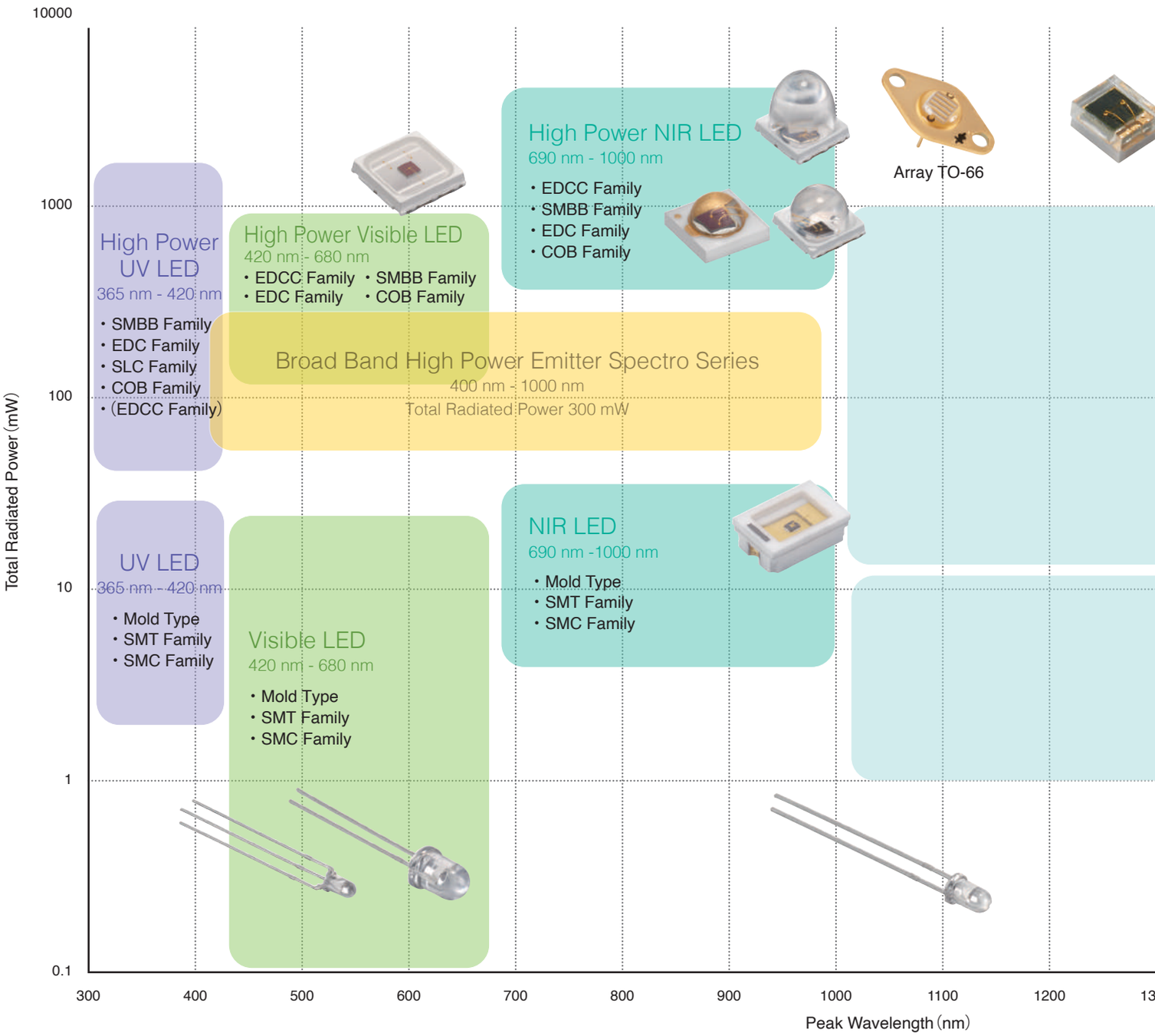
All wavelengths between 365 nm and 1900 nm can be offered.

epitex series

Coverage of all wavelengths in the UV (ultraviolet), visible and IR (infrared) spectra from 365 nm to 1900 nm.

- Multiple models to support all output power ranges from standard to high power.
- Wide range of packages suitable for your ideal optical design.

We can also offer products that combine photosensors with LEDs.



IRED series

High output is achieved through the use of IRED's unique domed chip formation technology, and an excellent beam shape is provided by precision lens (package) design technology. The perfect light source collection for diverse applications such as CNC machine tools, robots, ophthalmoscopes, and position detection equipment.

High Power SWIR LED

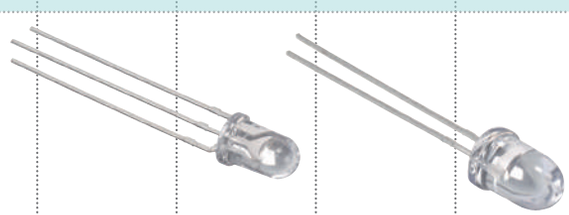
1000 nm - 1900 nm

- EDCC Family
- SMBB Family
- EDC Family
- SLC Family
- COB Family

SWIR LED

1000 nm - 1900 nm

- Mold Type
- SMT Family
- SMC Family



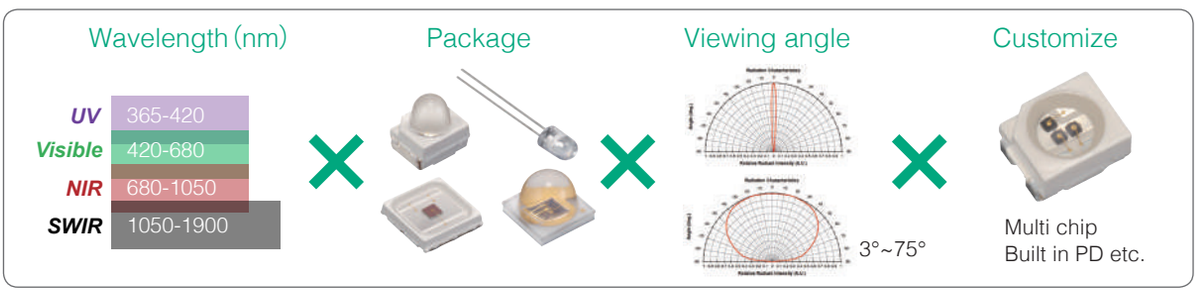
1300 1400 1500 1600 1700 1800 1900

Top Quality LEDs At Your Disposal

1 How to choose LED models

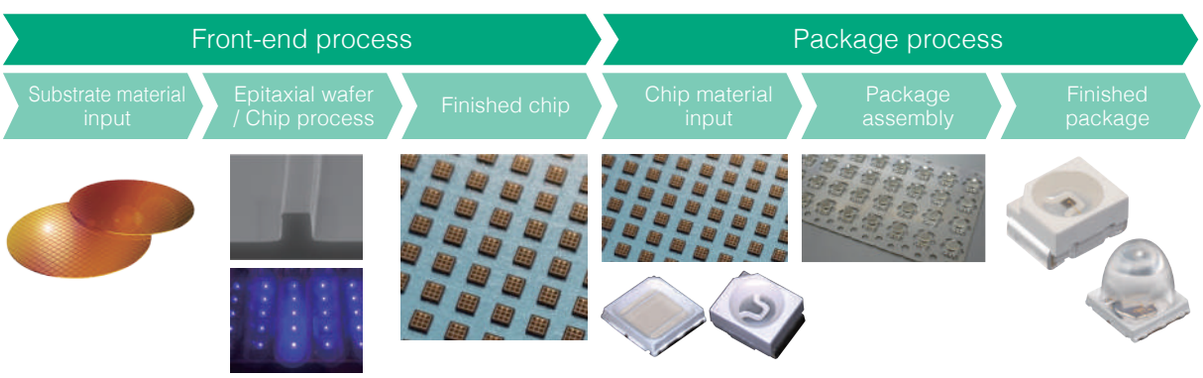
Select Wavelength × Package × Viewing angle × (Customize)

Our "epitex" series LED covers a wide range of wavelengths in the ultraviolet (UV), visible and infrared (IR) spectra, from 365 nm to 1900 nm, Ushio manufactures various types of LEDs to meet the requirements of the application.



Over 30 years know-how based on whole manufacturing process

Over 30 years of know-how based on complete manufacturing process.
Ushio owns the entire process in-house, from epi formation to packaging process. Utilizing our expertise, we provide products that meet the requirements of the application, such as multiple wavelengths & photodiode in 1 package in the desired size from more than 1500 LED configurations, as well as customized designs.



2 Wide wavelength range covering

UV 365 nm to SWIR 1900 nm

You can select the suitable LED wavelength for your application, with shorter wavelength emitters available in 20 nm increments (below 1000 nm), and longer wavelength emitters every 50 nm (over 1000 nm).

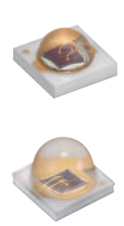
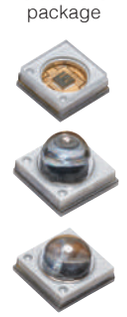
UV	365 nm	375 nm	385 nm	395 nm	405 nm	415 nm	420 nm						
Violet	430 nm	435 nm	450 nm										
Blue	470 nm	490 nm											
Green	505 nm	520 nm	525 nm	545 nm	550 nm	565 nm							
Yellow	570 nm	590 nm											
Orange	600 nm	610 nm	620 nm										
Red	630 nm	640 nm	660 nm	670 nm	680 nm								
IR/GaAs	690 nm	700 nm	710 nm	720 nm	730 nm	735 nm	740 nm	750 nm	760 nm	770 nm	780 nm	790 nm	
	800nm	810 nm	820 nm	830 nm	840 nm	850 nm	870 nm	880 nm	890 nm	910 nm	940 nm	970 nm	
	980 nm	1050 nm	1100 nm※										
IR/InP	1050 nm	1070 nm	1100 nm	1150 nm	1200 nm	1300 nm	1370 nm	1450 nm	1550 nm	1650 nm	1750 nm	1900 nm	

※Under Development

3 Multiple packages to fit your optics

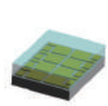
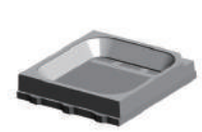
Single Chip Package Lineup

You can select your favorite packages from molded to SMD depending on your application, size and viewing angle.

ChipSize	300 µm, 350 µm, 400 µm			1 mm or More			
Output Power	Standard			High			
	Mold Type	SMT Family	SMC Family	EDDC Family	EDC Family	SMBB Family	SLC Family
	3 ϕ / 5 ϕ	3.5 mm×2.8 mm	3.0 mm×2.0 mm	1.5 mm ×1.85 mm	3.45 mm ×3.45 mm	5.2 mm×5 mm	3.9 mm×3.9 mm
Package				New 			Glass lens package 

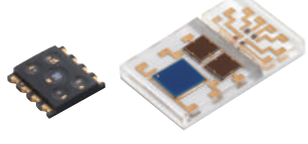
Multi-Chip Package Lineup

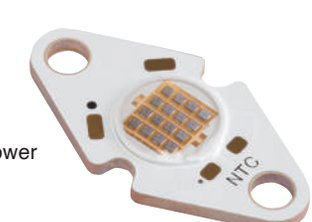
You can choose from a wide range to ensure both fine wavelength selection and multiple wavelength combinations.
Photosensors can also be provided according to the light source.

	8 in 1 COB	SMT Family	SMBB Family
Package image	New 		
Size	2.9 mm×2.2 mm	3.5 mm×2.8 mm	5.2 mm×5 mm
Number of Chips (300 µm-400 µm)	8 pcs max.	3 pcs max.	5 pcs max.
Number of Chips (1 mm-)	—	—	3 pcs max.

Offer custom packages for your ideal optical design

Please contact us even if you don't find the package design you need.
We will consider the optimal design according to your request.

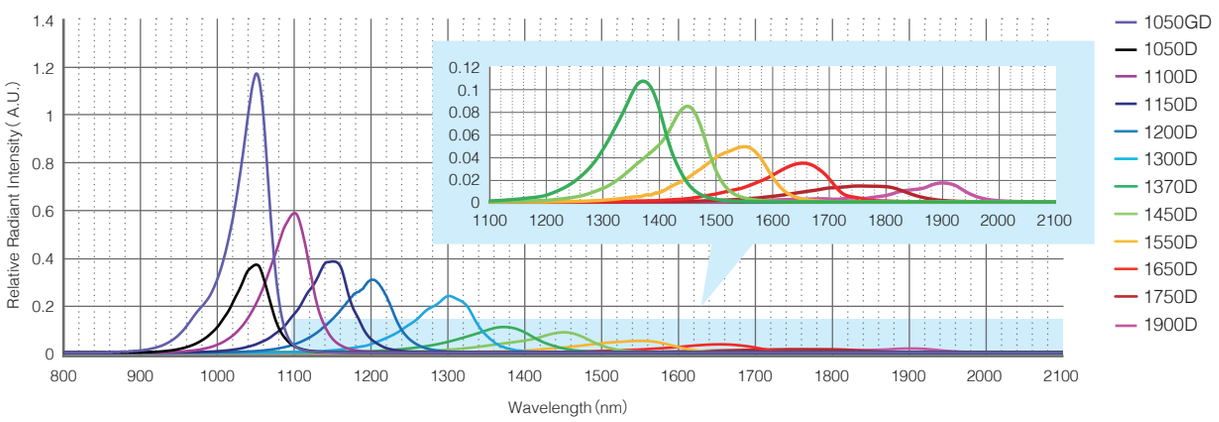
Standard Power 

High Power 

Short Wavelength Infrared LED

Features

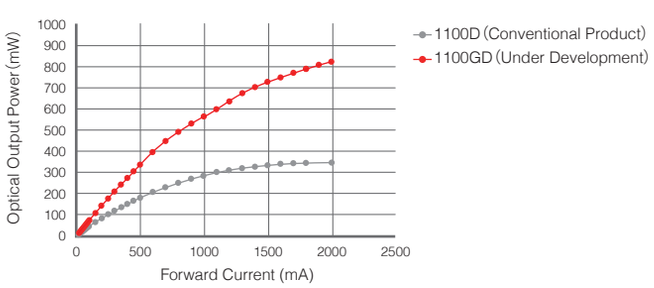
- Epitex series offers the world's highest class SWIR LED output power.
- Standard center wavelength is 1050,1070,1100,1150,1200,1300,1370,1450,1550,1650,1750,1900 nm.
- We can also propose a more unique wavelength selection according to the customer's requirement.



New GaAs (Gallium Arsenide) High Power 1100 nm LED

Under Development

- The 1100 nm LED, 1100 GD series will be released in addition to the existing 1050 GD series of high-power 1050 nm LED.
  It achieves more than twice the light output compared to the existing 1100 D chip product (IF=1.5A).



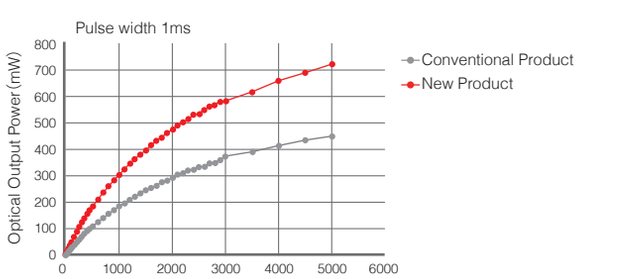
SMBB Package

	PO (mW) at 1A	VF (V) at 1A
SMBB1100D-1100	280	1.46
SMBB1100GD-1100	560	1.59

New High Power Pulse Drive SWIR LED

Sample Available

- Reduced watt cost with higher output per LED (limited to pulsed drive).
- Wavelength available from 1050 nm to 1900 nm.

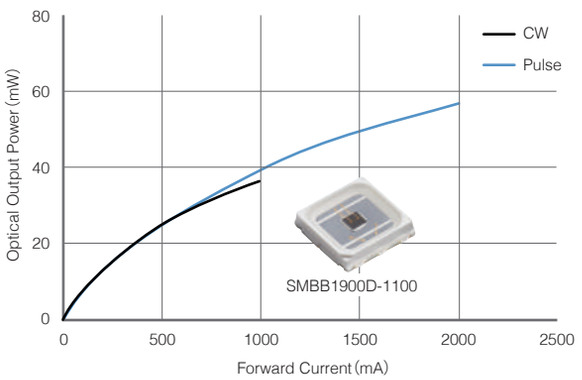


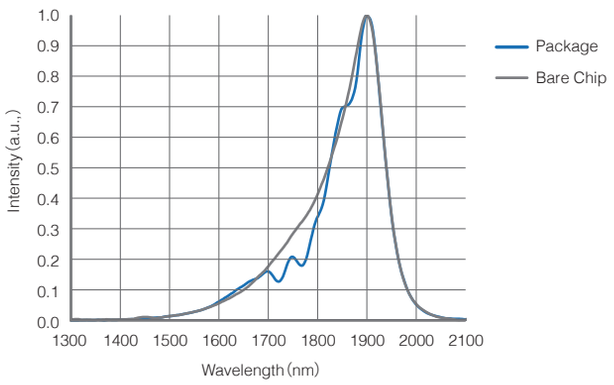
SMBB Package 1300nm

	PO (mW) Pulse IF=4A	VF (V) Pulse IF=4A
Conventional Product	400	2.4
New Product	660	4.9

New 1900 nm LEDs

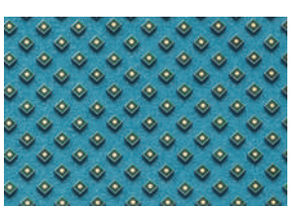
- Wavelength strongly absorbed by moisture (light source for moisture sensing) .
- Can be tuned for 1750 nm to 1900 nm range.

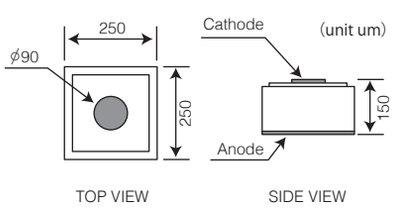


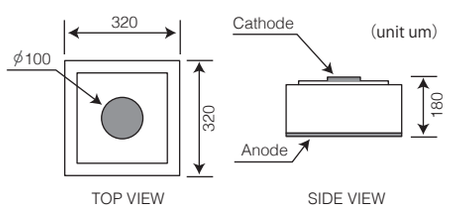


New SWIR LED Bare Chips

- The epitex series also offers bare chips in the SWIR wavelength range in 250 µm x 250 µm and 320 µm x 320 µm sizes.
- Standard wavelengths include 1050, 1070, 1100, 1150, 1200, 1300, 1370, 1450, 1550, 1650, 1750, and 1900 nm.
- Wavelengths and chip sizes can be customized upon request.





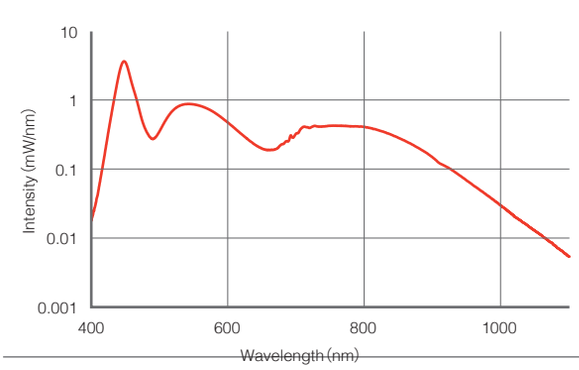


Spectro Series

Spectro LED Series

Features

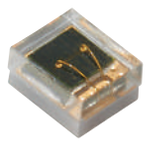
- The Spectro series are high-power, broadband LEDs capable of emitting visible to near-infrared light.
- It is hoped that Spectro will enable an individual to measure with spectroscopy at hand.



Total Radiated Power (typ) (λ =400-500 nm)	140 mW (IF 500 mA)
Total Radiated Power (typ) (λ =500-1000 nm)	160 mW (IF 500 mA)

Compact High-Power LED
EDCC Family

New



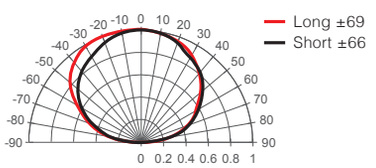
Features

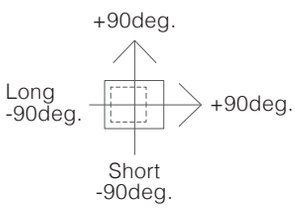
- All wavelengths from 365 nm to 1900 nm can be offered.
- Compact-sized package, comparable to CSP and high-power 1 mm×1 mm LED chips, facilitating easy customization in an SMD-type LED format.
- Package design optimized for high-density integration.

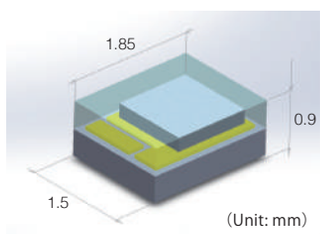
Specifications [e.g. EDCC*****]

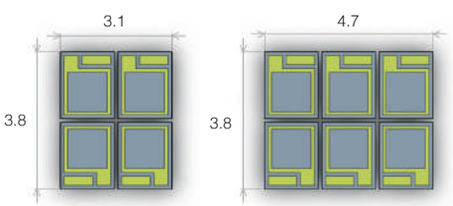
Flat Type

- Viewing Half Angle: Long ±69 Short ±66









Makes it easy to create unique designs,
e.g. high-density mounting of multiple LEDs together
or mixing multiple wavelengths.

High Power TOP LED
SMBB Family

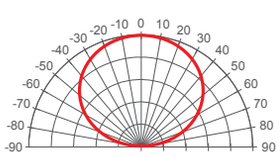
Features

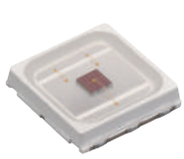
- All wavelengths from 365 nm to 1900 nm can be offered.
- High power TOP LED using 1 mm x 1 mm chip.
- Package of 5 mm x 5 mm equipped with copper heat sink.
- Max. 3 pcs of 1 mm x 1 mm size chip can be mounted.

Specifications [e.g. SMBB760D Series]

Flat Type

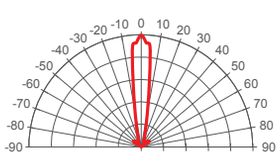
- Viewing Half Angle: ±64 deg.





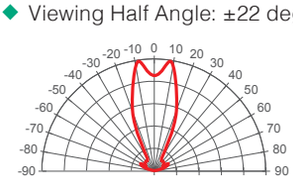
02 Lens Type

- Viewing Half Angle: ±9 deg.



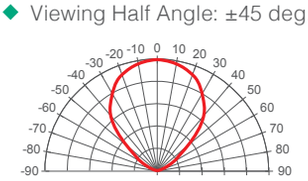
03 Lens Type

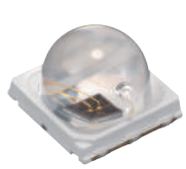
- Viewing Half Angle: ±22 deg.



05 Lens Type

- Viewing Half Angle: ±45 deg.





High Power TOP LED
EDC Family

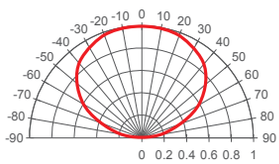
Features

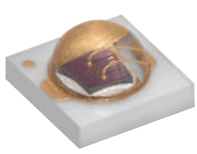
- All wavelengths from 365 nm to 1900 nm can be offered.
- High power TOP LED using 1 mm x 1 mm chip.
- Ceramic Package of 3.5 mm x 3.5 mm.

Specifications [e.g. EDC850DS Series]

Flat Type

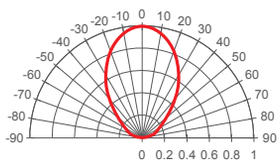
- Viewing Half Angle: ±66 deg.

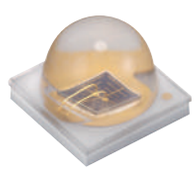




S5 Lens Type

- Viewing Half Angle: ±39 deg.





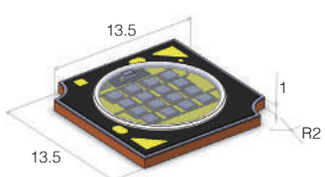
High Power Emitter
COB Family

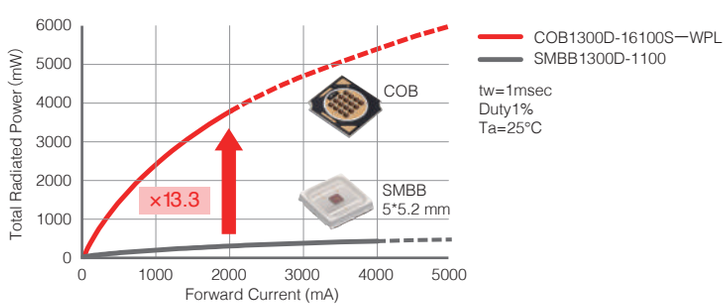
New

Features

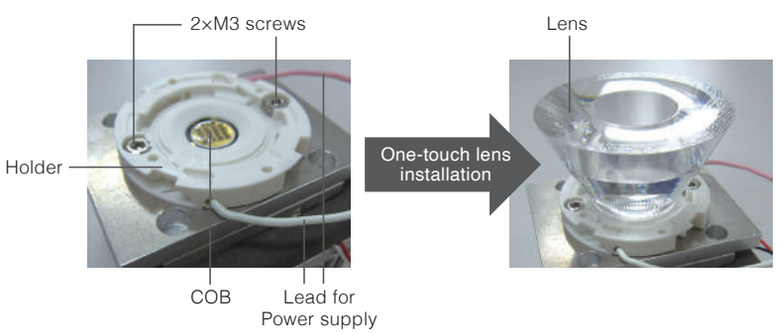
- All wavelengths of 1 mm x 1 mm high power chips from 365 nm to 1900 nm can be mounted.
- Improved light extraction efficiency by placing a potting lens on each LED chip.
- On-board NTC thermistor.
- Optimal applications include infrared lighting, machine vision, surveillance cameras, and optical sorting.

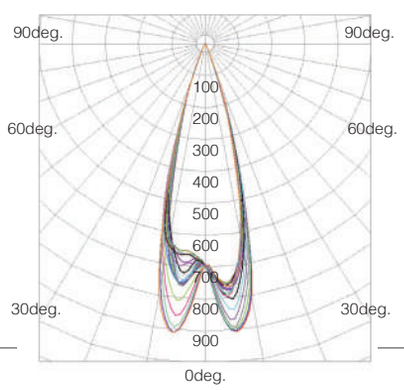
Specifications [e.g. COB*****]





Holders, lenses and other accessories available for general purpose COBs can be used. (e.g. LEDiL C16686_ILONA-RS)





SMT Family

Features

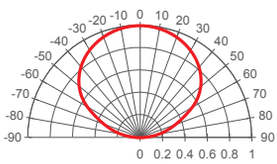
- All wavelengths from 365 nm to 1900 nm can be offered.
- Package dimension: 3.5 mm × 2.8 mm.

Specifications [e.g. SMT780 Series except 22 lens]

SMT with Silicone Lens

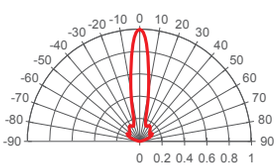
Flat Type

- Viewing Half Angle: ±62 deg.



S1 Lens Type

- SMT with Silicone Lens
- Viewing Half Angle: ±10 deg.

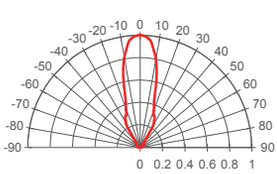


SMT with Epoxy Lens (Allowable Wavelengths: between 470 nm and 1,650 nm)

22 Lens Type

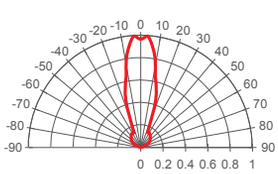
- SMT with Epoxy Lens
- Viewing Half Angle: ±15 deg.

* Appicable for specific wavelength • SWIR Dtype • NIR D and DS type
[e.g. SMT1550D-22]



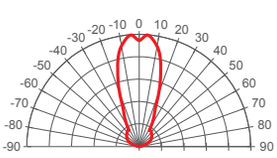
23 Lens Type

- SMT with Epoxy Lens
- Viewing Half Angle: ±16 deg.



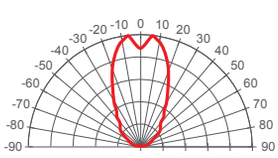
25 Lens Type

- SMT with Epoxy Lens
- Viewing Half Angle: ±20 deg.



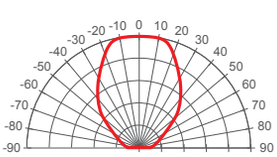
27 Lens Type

- SMT with Epoxy Lens
- Viewing Half Angle: ±39 deg.



29 Lens Type

- SMT with Epoxy Lens
- Viewing Half Angle: ±45 deg.



Molded Type

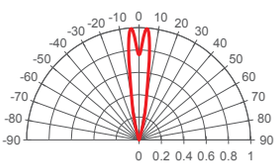
Features

- Plastic Molded Type LED.
- All wavelengths from 365 nm to 1900 nm can be offered.

Specifications [e.g. L750-AU Series]

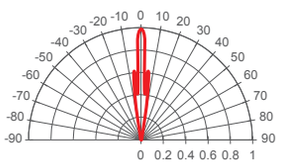
01 Lens Type

- ø5 Plastic Molded LED
- Viewing Half Angle: ±10 deg.



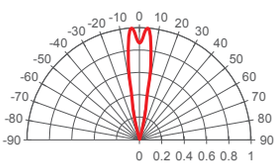
02 Lens Type

- ø5 Plastic Molded LED
- Viewing Half Angle: ±8 deg.



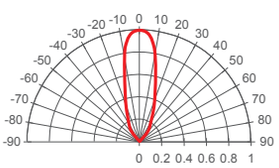
03 Lens Type

- ø5 Plastic Molded LED
- Viewing Half Angle: ±10 deg.



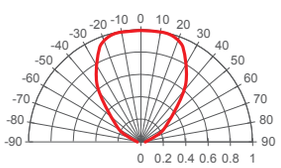
04 Lens Type

- ø5 Plastic Molded LED
- Viewing Half Angle: ±17 deg.



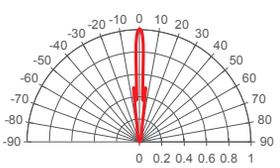
05 Lens Type

- ø5 Plastic Molded LED
- Viewing Half Angle: ±44 deg.



06 Lens Type

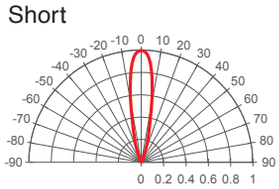
- ø5 Plastic Molded LED
- Viewing Half Angle: ±4 deg.



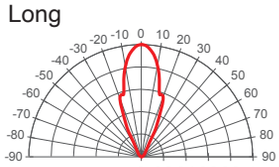
09 Lens Type

- ø5 Plastic Molded LED
- Viewing Half Angle:
  Short: ±10 deg. Long: ±21 deg.

Short

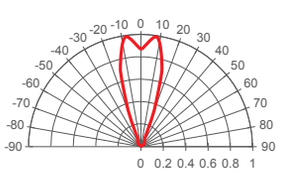


Long



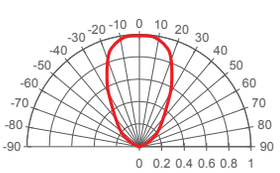
33 Lens Type

- ø3 Plastic Molded LED
- Viewing Half Angle: ±17 deg.



36 Lens Type

- ø3 Plastic Molded LED
- Viewing Half Angle: ±32 deg.



Developing Solutions Together

Ushio is a partner that listens to your ideas and requirements. Let us optimise your processes according to your specifications and expectations. Use our expertise to develop a tailor-made solution that matches your needs.

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